

Claim rejections – 35 USC § 103

3. Claims 1-14 are rejected as being unpatentable over Aijala (US 5,997,602) in view of Stern *et al.* (US 5,653,782). The Examiner notes that Aijala provides a fertilizer formulation based on calcium and/or magnesium and phosphate ion, such as phosphoric acid and potassium phosphate. The Examiner notes that Aijala does not specifically relate to mono-calcium phosphate and mono-magnesium phosphate, but he cites Stern who allegedly teaches that the above mentioned mono-phosphates are well known fertilizers, and that it would be obvious to combine Stern and Aijala.

There is no argument that mono-calcium phosphate and mono-magnesium phosphate are known fertilizers. However, we would like to note that the instant application relates specifically to solid, freely flowing, fertilizers, wherein Aijala relates to liquid fertilizers (see abstract, examples and claims). As clearly indicated in the application (see page 1, 2nd paragraph), the instantly claimed solid fertilizers overcome several drawbacks of liquid fertilizers of the prior art and have improved packaging, storing, shipping and stability properties.

Moreover, there is nothing in Aijala that even suggests or teaches a skilled artisan to prepare solid fertilizers. Quite the contrary, Aijala teaches away from producing solid fertilizers stating that *"the insoluble component precipitates, thus clogging the irrigation systems, and its nutrients are no longer in a form which the plants can utilize. The trace elements... tend to precipitate..."* (column 1, lines 19-24). Aijala further states that its liquid fertilizers *"avoid calcium and/or magnesium and phosphorus precipitation"* (column 2, lines 4-6).

Accordingly, there is nothing in Aijala, alone or in combination with Stern, which deprives the present invention of inventiveness.

4. Claims 1-14 are further rejected as being unpatentable over WO 01/05913 in view of a combination of Stern *et al.* (US 5,653,782) and Aijala (US 5,997,602). The Examiner notes that WO 01/05913 discloses a sodium-, potassium- or calcium-phosphate fertilizer composition. The Examiner further notes that WO 01/05913 does not specifically relate to the possibility that the phosphates should be employed as mixtures, or that phosphoric acid should be included in the composition. Therefore, the Examiner cites Aijala and Stern, noting that the publications provide these missing parts, i.e. that the above mentioned fertilizers can be mixed and that phosphoric acid should be admixed with potassium phosphate.

We strongly disagree with the Examiner's allegation that WO 01/05913 relates to the instant invention. WO 01/05913 discloses methods for pyrolysis, combustion and gasification of carbonaceous materials, wherein the residual products from the reaction can be used as fertilizers. WO 01/05913 merely mentions fertilizers as an unimportant byproduct of the claimed method. It is not likely that a skilled artisan seeking ways to produce fertilizers, would address such prior art relating to a completely different subject matter of which fertilizers are a mere side effect.

Nevertheless, even if assuming that a skilled artisan looking to produce fertilizers would have read WO 01/05913, Aijala, and Stern, he would not have been taught how to produce the solid fertilizers of the instant invention. As previously mentioned, Aijala teaches away from producing solid fertilizers and recommends preparing solutions with specific pH and active agents concentration.

Moreover, presuming that the artisan would have decided to produce solid fertilizers based on the process of WO 01/05913, said process is not even described in a manner enabling repeating it. WO 01/05913 merely states that the "*precise amount of added phosphorous... depends on the precise process conditions, the fuel composition... and other additives...*" (page 4 lines 12-14; and page 2, lines 3-4). Moreover, WO 01/05913 states that the amounts used are different in simple cases compared to most cases and specific cases (page 2, lines 7-10), but it does not teach how to differentiate or identify each case. There are also no examples demonstrating such processes, or even an indication of how to separate the byproduct fertilizer - it only mentions "*withdrawal from the reactor*" page 2, line 23.

Finally, the process described in WO 01/05913 includes pyrolysis, combustion and gasification of carbonaceous materials. These are utterly different from the instantly heating step used in the instant invention when preparing the claimed solid fertilizers. Moreover, the instant invention relates to a temperature of about 120°C (see examples), whereas WO 01/05913 relates to much higher temperatures, e.g. over 500°C (page 3, lines 4-7 from the bottom).

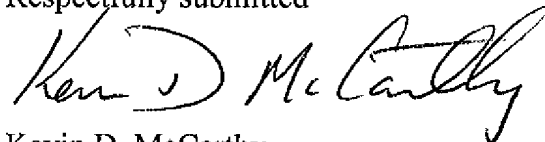
Accordingly, a skilled artisan reading these three publications, will not be motivated, or taught how, to prepare the solid fertilizers of the instant invention.

5. Additionally, none of the cited references teaches a solid fertilizer comprising an alkali metal double salt ($\text{AH}_5(\text{PO}_4)_2$) formed by the reaction of the alkali metal phosphate (MALP) with the phosphoric acid (PA), as claimed in instantly amended claim 1.

Conclusions

6. Since none of the cited documents or any combination thereof would have taught one skilled in the art the fertilizers of the invention, or the process for their preparation, the claimed fertilizers and process of their preparation, are believed to be non-obvious over the cited prior art. Since the Examiner's objections and rejections have been addressed and the defects corrected, it is believed that all pending claims are allowable. Accordingly, we would respectfully ask the Examiner to reconsider his obviousness objection and allow the claims.

Respectfully submitted



Kevin D. McCarthy
Reg. No. 35,278

Roach, Brown, McCarthy & Gruber, P.C.
1920 Liberty Building - 424 Main Street
Buffalo, New York 14202